

composition." 363 F.2d at 934, 150 USPQ at 628 (emphasis in original).).

2113 Product-by-Process Claims [R-1]

PRODUCT-BY-PROCESS CLAIMS ARE NOT LIMITED TO THE MANIPULATIONS OF THE RECITED STEPS, ONLY THE STRUCTURE IMPLIED BY THE STEPS

"[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985) (citations omitted) (Claim was directed to a novolac color developer. The process of making the developer was allowed. The difference between the inventive process and the prior art was the addition of metal oxide and carboxylic acid as separate ingredients instead of adding the more expensive pre-reacted metal carboxylate. The product-by-process claim was rejected because the end product, in both the prior art and the allowed process, ends up containing metal carboxylate. The fact that the metal carboxylate is not directly added, but is instead produced in-situ does not change the end product.).

>The structure implied by the process steps should be considered when assessing the patentability of product-by-process claims over the prior art, especially where the product can only be defined by the process steps by which the product is made, or where the manufacturing process steps would be expected to impart distinctive structural characteristics to the final product. See, e.g., *In re Garner*, 412 F.2d 276, 279, 162 USPQ 221, 223 (CCPA 1979) (holding "interbonded by interfusion" to limit structure of the claimed composite and noting that terms such as "welded," "intermixed," "ground in place," "press fitted," and "etched" are capable of construction as structural limitations.)<

ONCE A PRODUCT APPEARING TO BE SUBSTANTIALLY IDENTICAL IS FOUND AND A 35 U.S.C. 102/103 REJECTION MADE, THE BURDEN SHIFTS TO THE APPLICANT TO SHOW AN UNOBBVIOUS DIFFERENCE

"The Patent Office bears a lesser burden of proof in making out a case of *prima facie* obviousness for product-by-process claims because of their peculiar nature" than when a product is claimed in the conventional fashion. *In re Fessmann*, 489 F.2d 742, 744, 180 USPQ 324, 326 (CCPA 1974). Once the examiner provides a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product. *In re Marosi*, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir. 1983) (The claims were directed to a zeolite manufactured by mixing together various inorganic materials in solution and heating the resultant gel to form a crystalline metal silicate essentially free of alkali metal. The prior art described a process of making a zeolite which, after ion exchange to remove alkali metal, appeared to be "essentially free of alkali metal." The court upheld the rejection because the applicant had not come forward with any evidence that the prior art was not "essentially free of alkali metal" and therefore a different and unobvious product.).

Ex parte Gray, 10 USPQ2d 1922 (Bd. Pat. App. & Inter. 1989) (The prior art disclosed human nerve growth factor (b-NGF) isolated from human placental tissue. The claim was directed to b-NGF produced through genetic engineering techniques. The factor produced seemed to be substantially the same whether isolated from tissue or produced through genetic engineering. While the applicant questioned the purity of the prior art factor, no concrete evidence of an unobvious difference was presented. The Board stated that the dispositive issue is whether the claimed factor exhibits any unexpected properties compared with the factor disclosed by the prior art. The Board further stated that the applicant should have made some comparison between the two factors to establish unexpected properties since the materials appeared to be identical or only slightly different.).

THE USE OF 35 U.S.C. 102/103 REJECTIONS FOR PRODUCT-BY-PROCESS CLAIMS HAS BEEN APPROVED BY THE COURTS

“[T]he lack of physical description in a product-by-process claim makes determination of the patentability of the claim more difficult, since in spite of the fact that the claim may recite only process limitations, it is the patentability of the product claimed and not of the recited process steps which must be established. We are therefore of the opinion that when the prior art discloses a product which reasonably appears to be either identical with or only slightly different than a product claimed in a product-by-process claim, a rejection based alternatively on either section 102 or section 103 of the statute is eminently fair and acceptable. As a practical matter, the Patent Office is not equipped to manufacture products by the myriad of processes put before it and then obtain prior art products and make physical comparisons therewith.” *In re Brown*, 459 F.2d 531, 535, 173 USPQ 685, 688 (CCPA 1972).

2114 Apparatus and Article Claims — Functional Language [R-1]

For a discussion of case law which provides guidance in interpreting the functional portion of means-plus-function limitations see MPEP § 2181 - § 2186.

APPARATUS CLAIMS MUST BE STRUCTURALLY DISTINGUISHABLE FROM THE PRIOR ART

>While features of an apparatus may be recited either structurally or functionally, claims< directed to >an< apparatus must be distinguished from the prior art in terms of structure rather than function. >*In re Schreiber*, 128 F.3d 1473, 1477-78, 44 USPQ2d 1429, 1431-32 (Fed. Cir. 1997) (The absence of a disclosure in a prior art reference relating to function did not defeat the Board’s finding of anticipation of claimed apparatus because the limitations at issue were found to be inherent in the prior art reference); see also *In re Swinehart*, 439 F.2d 210, 212-13, 169 USPQ 226, 228-29 (CCPA 1971);< *In re Danly*, 263 F.2d 844, 847, 120 USPQ 528, 531 (CCPA 1959). “[A]pparatus claims cover what a device *is*, not what a device *does*.” *Hewlett-Packard Co. v. Bausch & Lomb Inc.*,


909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990) (emphasis in original).


MANNER OF OPERATING THE DEVICE DOES NOT DIFFERENTIATE APPARATUS CLAIM FROM THE PRIOR ART

A claim containing a “recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus” if the prior art apparatus teaches all the structural limitations of the claim. *Ex parte Masham*, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987) (The preamble of claim 1 recited that the apparatus was “for mixing flowing developer material” and the body of the claim recited “means for mixing ..., said mixing means being stationary and completely submerged in the developer material”. The claim was rejected over a reference which taught all the structural limitations of the claim for the intended use of mixing flowing developer. However, the mixer was only partially submerged in the developer material. The Board held that the amount of submersion is immaterial to the structure of the mixer and thus the claim was properly rejected.).

A PRIOR ART DEVICE CAN PERFORM ALL THE FUNCTIONS OF THE APPARATUS CLAIM AND STILL NOT ANTICIPATE THE CLAIM

Even if the prior art device performs all the functions recited in the claim, the prior art cannot anticipate the claim if there is any structural difference. It should be noted, however, that means plus function limitations are met by structures which are equivalent to the corresponding structures recited in the specification. *In re Ruskin*, 347 F.2d 843, 146 USPQ 211 (CCPA 1965) as implicitly modified by *In re Donaldson*, 16 F.3d 1189, 29 USPQ2d 1845 (Fed. Cir. 1994). See also *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1951 (Fed. Cir. 1999) (The claims were drawn to a disposable diaper having three fastening elements. The reference disclosed two fastening elements that could perform the same function as the three fastening elements in the claims. The court construed the claims to require three separate elements and held that the reference did not disclose a separate third fastening element, either expressly or inherently.).

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702 F.2d 989, *, 1983 U.S. App. LEXIS 13565, **;
 217 U.S.P.Q. (BNA) 1

IN RE HOWARD **SERNAKER**

Appeal No. 82-579

UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

702 F.2d 989; 1983 U.S. App. LEXIS 13565; 217 U.S.P.Q. (BNA) 1

February 28, 1983

PRIOR HISTORY: Serial No. 916,018.

DISPOSITION: [****1**]

Reversed

CASE SUMMARY

PROCEDURAL POSTURE: Appellant challenged a decision of the United States Patent and Trademark Office Board of Appeals that upheld a patent examiner's rejection, under 35 U.S.C.S. § 103, of certain claims in appellant's patent application.


OVERVIEW: Appellant invented a type of embroidered emblem and a method of making the same. He then submitted a patent application containing two independent claims. Appellant's remaining claims were dependent. The patent examiner rejected appellant's claims as obvious and the United States Patent and Trademark Office Board of Appeals (board) affirmed the rejection under 35 U.S.C.S. § 103. On appeal, the court reversed the board's decision. The board incorrectly deduced obviousness from the prior art. The references relied upon by the board did not suggest, either separately or in combination, that transfer printing techniques should be combined with embroidery techniques in the specific manner claimed in appellant's application. Hence, the board's decision could not be sustained.

OUTCOME: The court reversed the order upholding the rejection of appellant's patent claims on the ground that the United States Patent and Trademark Office Board of Appeals incorrectly deduced obviousness from the prior art.

CORE TERMS: embroidery, substrate, print, embroidered, emblem, invention, transfer printing, color, thread, lace, patent, examiner, obviousness, secondary, inventor, teach, teachings, fabric, backing, sculptured, dyestuff, disclose, textile, machine, stitch, multicolored, bonding, mate, heat, dye

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HN1 ♦ Two manifestly related tests are indicated as appropriate when a court is reviewing decisions of the Patent and Trademark Office Board of Appeals denying patentability under [35 U.S.C. § 103](#) on obviousness grounds: (a) whether a combination of the teachings of all or any of the references would have suggested, expressly or by implication, the possibility of achieving further improvement by combining such teachings along the line of the invention in suit; and (b) whether the claimed invention achieved more than a combination which any or all of the prior art references suggested, expressly or by reasonable implication. [More Like This Headnote](#)

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HN2 ♦ It is not necessary that the prior art suggest expressly, or in so many words, the changes or possible improvements the inventor made. It is only necessary that the inventor apply knowledge clearly present in the prior art. [More Like This Headnote](#)

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HN3 ♦ Prior art references in combination do not make an invention obvious unless something in the prior art references would suggest the advantage to be derived from combining their teachings. [More Like This Headnote](#)

COUNSEL: Michael F. Petock argued and filed briefs, for Appellant.

Associate Solicitor Fred W. Sherling argued for Patent and Trademark Office. With him on the brief was Solicitor Joseph F. Nakamura.

JUDGES: Davis, Circuit Judge, Cowen, Senior Circuit Judge, and Nichols, Circuit Judge. Oscar H. Daris, Circuit Judge, concurring in part and concurring in the result.

OPINIONBY: NICHOLS

OPINION: [*990] NICHOLS, Circuit Judge.

This case is before us on appeal from the decision of the Patent and Trademark Office Board of Appeals (board). In a 2-1 decision, the board affirmed the examiner's rejection, under [35 U.S.C. § 103](#), of claims 1-6 and 8-11 in appellant's application serial No. 916,018, filed June 15, 1978, entitled "Embroidered Transfer and Method of Making." These claims comprise all the

claims in the case. We *reverse*.

I

Background

A. *The Invention*

Appellant has invented a type of embroidered emblem and a method of making the same. Claims 1 and 10, the only independent claims in appellant's application, are representative of the method and of the emblem, respectively:

1. A method of making an embroidered transfer or emblem comprising the steps of: **[**2]**
 - (a) embroidering a pattern on a portion of a substrate while using thread free from oil and with said thread being of a **[*991]** single color and in an amount so that a portion of the pattern is sculptured by having a greater thickness than another portion of the pattern,
 - (b) separating the pattern and its associated substrate portion from the remainder of the substrate,
 - (c) providing a transfer print on paper with a dyestuff of at least two different colors and capable of subliming under heat and pressure or vacuum,
 - (d) registering portions of the print with mating portion of said pattern,
 - (e) transferring color from said print as a gas to the warp side of the pattern while applying sufficient heat to sublime said dyestuff.
10. An embroidered transfer emblem comprising an embroidered pattern on one side of a substrate whose size corresponds to the size of the pattern with thread of a single color which is free of needle oil, portions of the pattern having a sculptured effect by an increased number of thread stitches, at least two colors of dyestuff printed on the thread stitches defining said portions and on other portions of the pattern, said colors being in registry **[**3]** with said sculptured portions of said pattern with at least one of said printed portions including printing outlining a configuration on a portion of said pattern, and said colors being printed on the warp side of said pattern.

The remaining claims are either dependent on method claim 1 (claims 2-6) or on article claim 10 (claims 8, 9 and 11). For example, claim 2 defines a method in accordance with claim 1 of "applying a thermoplastic adhesive to the shuttle side of the

thusly printed pattern." Since neither of the parties argue separately the patentability of each of the rejected claims, the dependent claims will stand or fall with independent claims 1 and 10. *In re Burckel*, 592 F.2d 1175, 1178-79, 201 U.S.P.Q. (BNA) 67, 70 (CCPA 1979).

The claim language includes several key phrases that we should define at the outset. When the inventor uses "registering" and "in registry," he appears by the context to mean placing or placed in correspondence. A "substrate" literally means a basis on which an organism lives, as a plant on the soil. Another common definition of the term in scientific circles is any solid surface on which a coating or layer of different material is deposited. **[**4]** Under both definitions, application to an embroidery is an understandable analogy.

The record includes samples of the "emblems" made by the claimed method, as completed, and in intermediate stages. As completed, the "emblems" are justly characterized by the board as "extremely attractive." They are apparently badges affixed to garments to convey messages about the loyalties, affiliations, tastes, and preferences of the wearer. Would that we judges had something of the sort to brighten up our robes!

The emblem produced by appellant's method resembles an emblem initially embroidered with different colored threads. Appellant's method, however, circumvents the need to embroider the desired pattern with these different colored threads. Rather, a manufacturer following appellant's method first embroiders the pattern with thread of one color on a substrate, separates the embroidery and its associated substrate from the rest of the substrate, and then essentially dyes the threads different colors by use of a transfer print. Such a transfer print consists of two or more dyestuffs on a piece of paper arranged in a pattern mirroring in shape or "mating" the pattern of the embroidery. **[**5]** By placing the transfer print over the embroidery so that the dyestuffs face the embroidery and match its pattern, and then by applying heat and pressure or vacuum conditions, the dyestuffs on the paper will sublime and then adhere to the matching portion of the embroidery.

Before appellant's invention, a manufacturer would use the Schiffli embroidery machine alone to mass produce embroidery. This large machine, however, cannot stitch thread of more than one color at a time. Thus, to create multicolored patterns, the machine would be shut down after each separate color had been embroidered so its **[*992]** 684 needles could be rethreaded with the next color thread. Since each rethreading procedure takes about 45 minutes, the number of different colors that were commercially feasible to use in a single emblem was limited. With appellant's invented method, on the other hand, a manufacturer can produce an emblem of many colors because he need not rethread the machine anew for each desired color. Instead, only one color (usually white) is used for the entire embroidered pattern, and then the pattern is dyed different colors with one multicolored transfer print.

B. The **[**6]** References

The references relied upon by the board are:

Haigh	3,657,060	April 18, 1972
Cox	3,974,010	August 10, 1976
Sernaker	4,092,451	May 30, 1978
British patent	1,243,223	August 18, 1971

Miles, L.W.C., *Journal of the Society of Dyers and Colorists*, May 1977, pages 161-163.

Vellins, *British Knitting Industry*, Vol. 46, No. 524, January 1973, pages 45, 46, 48, 50, 53, 55, 57, 59, 63, 65, 67, and 69.

The Butterick Fabric Handbook, Published by Butterick Publishing, A Division of American Can Company, New York, New York, 1975, pages 99, 100, 119-121, and 142.

The British patent discloses a process of transfer printing on all types of textile articles regardless of their fibers, and a like process of printing on a variety of non-textile articles. With respect to transfer printing on textile articles, the British patent recites a general line of materials to which the process may be applied:

* * * Fleeces or webs of non-woven fibers, textile threads, woven webs, knitted material, lace, spongy material in sheet form or already shaped, or even made up articles of clothing.

[British, page 1, lines 68-72.] **[**7]**

The British patent does not specifically mention embroidery as an article susceptible to transfer printing. This patent does, however, teach that a multicolored design may be transferred to textile articles, generally, from a transfer print:

* * * Several dyes of different colours can be applied on the same support [of the transfer print], these dyes being either intimately mixed or *distributed in order to form the designs* which are to be transferred to the textile articles.

[British, page 2, lines 44-48, emphasis supplied.]

The Miles reference teaches that transfer printing can be done on a variety of substrates, such as substrates of polyester and of carpet tile. Miles specifically states that when transferring designs from a paper transfer print to fiber, perfect contact is not necessary because of the vapor state of the dye when it transfers. Although Miles exhibits an awareness of embroidery

procedures, he does so in the context of describing the transfer of embroidered patterns onto nonembroidered surfaces; Miles does not teach transfer printing on embroidery itself. Vellins not only teaches transfer printing on a variety of textile substrates **[*8]** (including carpet), but also teaches the deleterious effects of transfer printing on a polyester substrate that contains lubricating oil and other such substances.

The remainder of the references concern various embroidery techniques and methods of producing embroidered emblems, rather than teachings about transfer printing. Butterick reveals that white-on-white embroidery, such as embroidery decoration on a white tablecloth, is commonly made. Butterick also teaches that designs formed in lace can be outlined with embroidery stitching; Butterick defines this entire piece of lace as "re-embroidered lace."

The Haigh patent discloses an embroidered emblem comprised of an embroidered design stitched onto a woven fabric backing material with an embroidered border, and a thermoplastic adhesive bonded to the other side of the backing material.

The Cox patent discloses a method of preparing articles of "aetzed" embroidery whereby a design is embroidered directly onto a backing of thermoplastic material, **[*993]** the design and backing are ironed onto a transfer strip, and then the transfer strip is removed taking with it all parts of the backing not in contact with the embroidery. **[*9]** Embroidery is "aetzed" when heat is used to remove the portions of a backing not in contact with embroidery stitches, so that the embroidered design is left hanging together like lace. The portions of the thermoplastic backing that remain in contact with the embroidery become absorbed or melted into the embroidery as a result of the ironing and serve to improve the bonding of the embroidery stitches and to give the embroidery more body. This improved bonding eliminates the need for underlay and interlock stitches, which would otherwise provide such additional bonding.

The **Sernaker** patent, issued to appellant in this case, discloses an embroidered transfer wherein a pattern is embroidered onto one side of a diaphanous material with the Schiffli machine, and a layer of adhesive is applied to the other side of this material. When this transfer is ironed onto a base fabric, the diaphanous material melts into the fabric and disappears from view; the transfer thus assumes the appearance of a pattern that is directly embroidered onto the base fabric.

C. *The Rejection*

The board affirmed the examiner's rejection of claims 1, 4-6, and 9-11 n1 under 35 U.S.C. § 103 as obvious **[*10]** in view of British taken with Miles, Vellins, and Butterick. The board also affirmed the rejection of claims 2, 3, and 8 for the same reasons and further in view of Cox or Haigh and **Sernaker**. The board took the position that appellant's invention in essence consisted of two known elements or procedures: (1) the transfer printing of multicolored designs from a paper strip onto various types of substrates, including fabrics, and (2) the making of embroidered transfers or emblems by stitching a pattern of different colored threads onto a substrate.

----- Footnotes -----

n1 In Part II, 4 of the examiner's final rejection dated December 3, 1979, the examiner rejected appellant's claims 1-6, and 8-11. In the portion of this letter articulating the reasons for the rejection (Pt. II, 12), however, the examiner inadvertently

omitted claim 11 from his discussion of the group of claims to which it belonged. The omission was a typographical error. The board corrected this error when it discussed the examiner's rejection of claims 1, 4-6, and 9-11.

----- End Footnotes----- **[**11]**

After noting that appellant had admitted that both of these elements were known in the prior art, the board characterized the manner in which appellant combined them to make a novel article in the following way: "A substrate is stitched with a single colored or white thread and then dyed in the form of a design by transfer printing." Transcript at 75. In the subsequent analysis of the cited references, the board treated various aspects of the appellant's claims as either taught by the references concerning transfer printing or those concerning emblem -making. The board thus reduced the appeal to the question "whether it would have been obvious for one skilled in this art, having these references available, to use the dye transfer process for coloring embroidered emblems." Transcript at 75. The board answered affirmatively, stating:

After reviewing the references, we come to the conclusion that the dye transfer process has been taught to be usable for almost any type of substrate, from relatively smooth fabrics to materials, such as carpets, which are rough in texture and even to aluminum substrates. The formation of embroidered fabrics is known and, as is taught by Butterick, **[**12]** white-on-white embroidery is commonly made. We believe that one skilled in this art would readily understand that the dye transfer process, as described in these references, and which is acknowledged to be old by appellant, may be used to transfer dye in the form of a pattern to any substrate; whether smooth or rough.

While we find the embroidered emblems extremely attractive, we believe that the process would have been obvious in view of the cited art and that only the expected additive results are obtained. Also, we must not lose sight of the fact that the claims are generic in nature and **[*994]** are not limited to the specific exhibits presented in this case. We must compare the claims with the methods and articles described in the references. When we do so, we come to the conclusion that the claimed process and resulting article would have been obvious to one skilled in this art.

[Transcript at 75-76.]

II

OPINION

A. *Whether the board correctly deduced obviousness from the prior art.*

We may assume, for purposes of this decision, that all the prior art references in this case are sufficiently related to one another and to a related and common art, **[**13]** that the hypothetical person skilled in the art must be presumed to be familiar with

all of them. That being so, the next questions are *HN17*(a) whether a combination of the teachings of all or any of the references would have suggested (expressly or by implication) the possibility of achieving further improvement by combining such teachings along the line of the invention in suit, and (b) whether the claimed invention achieved more than a combination which any or all of the prior art references suggested, expressly or by reasonable implication. These manifestly related tests are indicated as appropriate by the following decisions of the former Court of Customs and Patent Appeals reviewing, as we do here, decisions of the board denying patentability under § 103 on obviousness grounds.

Cases reversing the board and holding the invention patentable --

In re Rinehart, 531 F.2d 1048, 189 U.S.P.Q. (BNA) 143 (CCPA 1976).

In re Imperato, 486 F.2d 585, 179 U.S.P.Q. (BNA) 730 (CCPA 1973).

In re Adams, 53 C.C.P.A. 996, 356 F.2d 998, 148 U.S.P.Q. (BNA) 742 (CCPA 1966).

Cases affirming the board and holding the invention unpatentable for obviousness --

In re McLaughlin, 58 C.C.P.A. 1310, [****14**] 443 F.2d 1392, 170 U.S.P.Q. (BNA) 209 (CCPA 1971).

In re Conrad, 58 C.C.P.A. 1013, 439 F.2d 201, 169 U.S.P.Q. (BNA) 170 (CCPA 1971).

In re Sheckler, 58 C.C.P.A. 936, 438 F.2d 999, 168 U.S.P.Q. (BNA) 716 (CCPA 1971).

And there are many others. All these cases are binding precedents in this tribunal, as much as our own will be. *South Corp. v. United States*, 690 F.2d 1368 (Fed. Cir. 1982). None can be treated as discredited merely because expressions in them can be taken out of their context and construed as in conflict with expressions in other cases. Some minds will prefer the results of the first trio, others of the second. The tests stated above, (a) and (b), were the tests applied in all six cases.

The board majority misdescribed the invention by confusing the embroidery with the substrate and in supposing the inventor

just applied a print to a rough substrate instead of a smooth one. It compared the invention with the prior art on the basis of the elements employed being print and substrate. Actually, by both claim 1 and claim 10, there are three component elements. The embroidery is introduced between the print and the substrate. No print is applied to the substrate. **[*15]** It is all applied to the embroidery. The pattern, being "sculptured," intercepts the colors in the print according to the designer's intentions. The print and the pattern (embroidery) are made to "register" (claims 1 and 10 both use this word), *i.e.*, conform. They "mate."

Certainly the board pointed to no prior art that separately suggested expressly or by implication a three-element combination made up in this way. British in general teaches transfer prints on the substrate, as do Miles and Vellins. The remainder do not teach at all about transfer printing. When one skilled in the art at the time of the invention is considering all the prior art in combination, we wholly fail to perceive what more he would have found. The most that would have appeared to have been suggested was the use of transfer prints on rough substrates by which, no doubt, a variety of designs might have been **[*995]** achieved. Mating or registering are suggested nowhere in the prior art. Therefore, it does not show how to approach the results this inventor achieved. No prior art suggests expressly or by implication keeping the print off the substrate and providing a "sculptured" embroidery **[*16]** in a pattern to mate and register with the print.

Although British teaches transfer printing on lace, this patent does not envision the use of a pattern inserted between the transfer print and the lace substrate that would "mate" with the transfer print. Of course the lace substrate itself has an inherent pattern, but British makes no mention of it and does not even hint at mating the transfer print with this pattern. Without some express or implied suggestion, we cannot assume that one of ordinary skill in the art would have found it obvious to mate the transfer print with this pattern. More to the point, the inherent pattern in lace cannot be inserted between the lace substrate and the transfer print because the pattern is part and parcel of the substrate. Even though lace can be "re-embroidered," as Butterick teaches, the embroidery on re-embroidered lace does not initiate a pattern, but merely outlines the pattern of the lace itself; the single colored embroidery described in the first steps of appellant's claimed method, on the other hand, exhibits a pattern of its own designed to mate with the transfer print, and keeps the print off the substrate.

The conclusion is the **[*17]** same under test (b) as it is under test (a). Under test (b), the person who considered merely combining the teachings of prior art references would not expect from the references or any implication to be drawn therefrom that the great advance made by appellant's invention could be attained. The board never showed how the teachings of the prior art could be combined to make the invention.

In re Sheckler, supra, may be taken as an example of a case where a combination of the teachings of prior art references suggested the inventor's result. The invention was for a building block for wall construction comprising a sandwich whose exterior portion were slabs of solid concrete and the interior, bonded to the slabs, was rigid light cellular heat insulating organic foam material. One prior art reference disclosed a reinforced concrete beam with an inner core of foamed polymeric material. Another disclosed a building block consisting of two layers of load-bearing glass separated by an interior layer of heat-insulating foamed glass material.

It could not have placed any great strain on the intellect of the court to sustain the board's conclusion of obviousness. The court said, **[*18]** and we agree, ^{HN2} it was not necessary that the prior art suggest expressly or in so many words, the "changes or possible improvements" the inventor made. It was only necessary that he apply "*knowledge clearly present in the prior art.*" *Sheckler*, 438 F.2d at 1001, 168 U.S.P.Q. (BNA) at 717. (Emphasis supplied.)

If this last test is not met, the invention claimed would not have been obvious from the references. *In re Imperato, supra*, may be taken as an example of a case when combination of the teachings of prior art references did not suggest the inventor's result. The court therefore reversed the board's holding of obviousness. The invention related to an improvement in the process of "beneficiating" low grade ore to prepare it for the blast furnace. Beneficiation requires grinding the ore to a finely divided state in order to facilitate the removal of impurities. Then, however, it must be recombined into lumps for the furnace. The prior art used various carbonates for bonding to which the inventor added free sulphur. Other prior art taught use of free sulphur only for bonding. The board thought it obvious to combine the two. The court, however, noted that combining both carbonates **[**19]** and sulphur achieved an unexpected result. Both prior processes resulted in lump ore having high strength at low temperatures, but not at high temperatures, whereas the combination obtained a lump ore having high strength in both situations, an unexpected and unobvious result. The lesson of this case appears to be that ~~HN3~~ prior art references **[**996]** in combination do not make an invention obvious unless something in the prior art references would suggest the advantage to be derived from combining their teachings. It does not appear from the opinion that the inventor actually did anything not disclosed somewhere in the prior art references, and in that regard the case was less favorable for unobviousness than the case at bar, where none of the prior art references disclosed an embroidery inserted between the print and the substrate, "registered" or mated the print with the embroidery, not the substrate, and transferred the print to the insert, not to the substrate.

For the foregoing reasons, it is clear that the principal rejection of claims 1, 4-6, and 9-11 cannot be sustained. The four references relied upon by the board for this rejection (British, Miles, Vellins, and Butterick), **[**20]** either separately or in combination, do not suggest that transfer printing techniques should be combined with embroidery techniques in the specific manner claimed in appellant's application. In view of all the art of record, we also hold that the secondary rejection of claims 2, 3, and 8 must be reversed. While Cox, Haigh, and **Sernaker** disclose various aspects about the making of embroidered emblems, none of them disclose or suggest transfer printing; they do not envision using transfer printing to create the effect of embroidery with different colored threads. Rather, they suggest using standard embroidery techniques, such as hand looming or embroidery with the Schiffli machine alone, to create the embroidered pattern. In the absence of any suggestion to use teachings concerning transfer printing in the making of embroidered emblems, we conclude that appellant's claimed invention would not have been obvious to one of ordinary skill in the art from the above seven references at the time of the invention. **B. Whether the board correctly disregarded the secondary considerations.**

Finally, we hold that the "secondary considerations" that the Supreme Court stated might be **[**21]** of possible utility in an obviousness determination, *Graham v. John Deere Co.*, 383 U.S. 1, 17-18, 86 S. Ct. 684, 15 L. Ed. 2d 545 (1966), also require a finding of nonobviousness if the matter be otherwise doubtful. In an appeal of a rejection of a patent application, secondary considerations, such as commercial success, typically do not play a large part in the analysis of obviousness because the inventor usually waits until his patent issues before he swings production into full gear. Thus, a detailed analysis of secondary considerations is more common in cases like *John Deere*, which involved infringement. If, however, a patent applicant properly presents evidence relating to these secondary considerations, the board must always consider such evidence in connection with the determination of obviousness. *In re Fielder and Underwood*, 471 F.2d 640, 644, 176 U.S.P.Q. (BNA) 300, 303 (CCPA 1973).

Appellant presented a considerable amount of such evidence. Despite the fact that a patent has not yet issued, appellant has been able to license his invention. Appellant's licensees have sold millions of the emblems, and the Gilardone affidavit attests that appellant's invention has **[**22]** met with great commercial success, has helped revitalize a depressed embroidery

industry, and has introduced a new kind of emblem into the marketplace. The DeVries affidavit also attests to the uniqueness of appellant's invention. In addition, the record clearly shows that appellant's multicolored, embroidered emblems are considerably cheaper to produce than the prior art embroidered emblems. It is true the prior art references relied on to establish obviousness had not been available to the inventor very long. Things apparently were moving fast in that industry. This might justify the thought that the want filled by the invention had not been felt very long, but it does not justify wholly ignoring these secondary considerations which here speak with unusual eloquence.

In the face of all this evidence, the board was silent. Although the two affidavits in the record before us were submitted after the examiner's decision became final, they **[*997]** were submitted before the board reached its decision. While appellant presented the DeVries affidavit to the examiner after his final action, 37 C.F.R. § 1.116(b) (1982) would allow the examiner to admit this evidence upon a showing **[*23]** of good cause. Under 37 C.F.R. § 1.195 (1982), the board had the power to admit the later Gilardone affidavit upon a similar showing. The record before us, however, is unclear whether the examiner did, in fact, admit the DeVries affidavit, and whether the board admitted the Gilardone affidavit; neither the examiner nor the board mentioned these affidavits. In response to our specific question in oral argument, however, the solicitor admitted that the "commercial success" affidavits were before the board. In addition, the solicitor cited in his brief the telling Gilardone affidavit and assured us that the board did consider evidence of commercial success. He stated:

The argument (Br-15), that the Board of Appeals failed to consider the evidence of commercial success, is untenable. The Board specifically stated that they found the embroidered emblems "extremely attractive" (R-76). This appears to be a recognition that the emblems would be well-received commercially. Appellant's affidavit (R-64) [the Gilardone affidavit] shows only that the emblems have had good sales. There is no comparison with the sales of other embroidered emblems.

As we stated above, the **[*24]** Gilardone affidavit shows much more than "good sales." In addition, we reject the notion that the board's bare compliment of the emblems as "extremely attractive" implies assignment of weight to appellant's commercial success evidence. To accept this notion would shrink the meaning of the phrase "secondary considerations" beyond belief. The board in fact said nothing about the commercial success of appellant's invention, and nothing about any of the other considerations the Supreme Court deemed relevant. Although the solicitor assures us that the board did consider the evidence before us relating to secondary considerations, we do not agree with his analysis of this evidence, nor do we find any support for this analysis in the board's opinion.

The solicitor in effect has stipulated that the board considered the evidence, which necessarily implies that it allowed the filing of it on a showing of good cause, as to which there is no other evidence in the record. In view of this stipulation, it appears it would be inappropriate to remand the case for the board to consider the same evidence a second time. We can only conclude that for some unexplained and, to us, unfathomable reason, **[*25]** the board found it insufficient to overcome the, to it, plain

indications of obviousness.


For the reasons stated in this opinion, the decision of the board is *reversed*.

REVERSED.

CONCURRY: DAVIS (In Part)

CONCUR: DAVIS, Circuit Judge, concurring in part and concurring in the result.

I join in Parts I and II B of Judge Nichols' opinion. As for Part II A, my judicial microscope suggests to me that, if the prior art is considered alone, the case is much closer than his opinion indicates. Differences there are, of course, between appellant's invention and the prior art, but it is not plain to me, from the bare references alone (especially those disclosing or suggesting transfer printing on lace and other rough-textured or somewhat "sculptured" material), that the invention was not obvious from the prior art. I need not, however, decide that unclear question on the references alone. For me the crucial insight is the "secondary consideration" of commercial success which (as Part II B of the main opinion spells out) appellant has fully proved, the Solicitor has not sought to rebut and has admitted was before the Board, and the Board failed properly to consider. Under *Graham v. [**26] John Deere Co.*, 383 U.S. 1, 17-18, 15 L. Ed. 2d 545, 86 S. Ct. 684 (1966), that type of success is a relevant factor, and in this close case I think it decisive in showing nonobviousness.





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*175 F.3d 994, *; 1999 U.S. App. LEXIS 8109, **;
50 U.S.P.Q.2D (BNA) 1614*

IN RE ANITA **DEMBICZAK** and BENSON ZINBARG, Appellants.

98-1498

UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

175 F.3d 994; 1999 U.S. App. LEXIS 8109; 50 U.S.P.Q.2D (BNA) 1614

April 28, 1999, Decided

PRIOR HISTORY: **[**1]** Appealed from: Patent and Trademark Office Board of Patent Appeals and Interferences. (Serial No. 08/427,732).

DISPOSITION: REVERSED.

CASE SUMMARY

PROCEDURAL POSTURE: Appellants, patent applicants, challenged a decision of the Patent and Trademark Office Board of Patent Appeals and Interferences that rejected all pending claims and double patenting in their application.


OVERVIEW: The patent appeals board (board) sustained and rejected all pending claims to appellants' claims in their patent application for a large trash bag made of orange plastic that when filled with trash or leaves would resemble a Halloween-style pumpkin, or jack-o'-lantern. Appellants challenged the board decision in the federal courts contending error in rejection of their pending claims and for obviousness-type double patenting. The court found no evidence in the record of a suggestion, teaching, or motivation to combine the prior art references asserted against the pending claims and reversed obviousness rejections. Concluding that there was no prima facie case against appellants, the court reversed the board's sustainment of their pending claims. The court further found, after de novo review, that the board had misapprehended the test for obviousness-type double patenting. Because the pending utility claims did not render obvious the design patents, the double patenting rejections were also improperly denied. The court reversed as to the double patenting rejections. The board decisions against appellant patent applicants were reversed.

OUTCOME: The court reversed the patent appeals board decision and double patenting rejections against the appellants,


patent applicants, because the board erred in sustaining rejections of the pending claims as obvious and misapprehended the test for obviousness-type double patenting.

CORE TERMS: bag, patent, trash, invention, obviousness, patenting, teaching, double, facial, combine, indicia, orange, pumpkin, motivation, skill, conventional, obviousness-type, examiner, plastic, leaf, filling, color, outer, subject matter, two-way, lantern, variation, hindsight, inventor, surface

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Patent Law > [Nonobviousness](#) > [Tests & Proof of Obviousness](#) 


HN1 ⚡ A claimed invention is unpatentable if the differences between it and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art. [35 U.S.C.S. § 103\(a\)](#). [More Like This Headnote](#)

Patent Law > [Nonobviousness](#) > [Tests & Proof of Obviousness](#) 


HN2 ⚡ The ultimate determination of whether an invention is or is not obvious is a legal conclusion based on underlying factual inquiries including: (1) the scope and content of the prior art; (2) the level of ordinary skill in the prior art; (3) the differences between the claimed invention and the prior art; and (4) objective evidence of nonobviousness. [More Like This Headnote](#)

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HN3 ⚡ A reviewing court will review the ultimate determination of obviousness without deference to the patent appeals board, while examining any factual findings for clear error. [More Like This Headnote](#)

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HN4 ⚡ Measuring a claimed invention against the standard established by [35 U.S.C.S. § 103](#) requires the oft-difficult but critical step of casting the mind back to the time of invention, to consider the thinking of one of ordinary skill in the art, guided only by the prior art references and the then-accepted wisdom in the field. Close adherence to this methodology is especially important in the case of less technologically complex inventions. [More Like This Headnote](#)

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HN5 ⚡ The best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references. [More Like This Headnote](#)


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HN6 ⚡ Combining prior art references without evidence of such a suggestion, teaching, or motivation simply takes the inventor's disclosure as a blueprint for piecing together the prior art to defeat patentability, the essence of hindsight. [More Like This Headnote](#)

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HN7 ➤ Evidence of a suggestion, teaching, or motivation to combine may flow from the prior art references themselves, the knowledge of one of ordinary skill in the art, or, in some cases, from the nature of the problem to be solved, although the suggestion more often comes from the teachings of the pertinent references. [More Like This Headnote](#)

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HN8 ➤ The range of sources available does not diminish the requirement for actual evidence. That is, the showing must be clear and particular. [More Like This Headnote](#)

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HN9 ➤ Broad conclusory statements regarding the teaching of multiple references, standing alone, are not evidence. In addition to demonstrating the propriety of an obviousness analysis, particular factual findings regarding the suggestion, teaching, or motivation to combine serve a number of important purposes, including: (1) clear explication of the position adopted by the Examiner and the Board; (2) identification of the factual disputes, if any, between the applicant and the Board; and (3) facilitation of review on appeal. [More Like This Headnote](#)

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HN10 ➤ Where the patent appeals board does not establish a prima facie case of obviousness, a reviewing court can reverse the obviousness rejections, and has no need to address the parties' arguments with respect to secondary factors. [More Like This Headnote](#)

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HN11 ➤ Obviousness-type double patenting is a judicially-created doctrine that seeks to prevent the applicant from expanding the grant of the patent right beyond the limits prescribed in Title 35. The doctrine prohibits claims in a second patent which define "merely an obvious variation" of an invention claimed by the same inventor in an earlier patent. Thus, unless a claim sought in the later patent is patentably distinct from the claims in an earlier patent, the claim must be rejected. [More Like This Headnote](#)

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HN12 ➤ The question of double patenting is one of law, which is to be reviewed de novo. [More Like This Headnote](#)

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HN13 ➤ The law provides that, in some very rare cases, obvious-type double patenting may be found between design and utility patents. Under this two-way test, the obviousness-type double patenting rejection is appropriate only if the claims of the two patents cross-read, meaning that the test is whether the subject matter of the claims of the patent sought to be invalidated would have been obvious from the subject matter of the claims of the other patent, and vice versa. [More Like This Headnote](#)

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HN14 In order for a design to be unpatentable because of obviousness, there must first be a basic design reference in the prior art, the design characteristics of which are "basically the same as the claimed design." [More Like This Headnote](#)

COUNSEL: David P. Gordon, of Stamford, Connecticut, argued for appellant. Of counsel was Thomas A. Gallagher, of Stamford, Connecticut.

John M. Whealan, Associate Solicitor, Office of the Solicitor, of Arlington, Virginia, argued for appellee. With him on the brief were Albin F. Drost, Acting Solicitor, and David R. Nicholson, Associate Solicitor.

JUDGES: Before MAYER, Chief Judge, MICHEL and CLEVENGER, Circuit Judges.

OPINIONBY: CLEVENGER

OPINION:

[*996] CLEVENGER, Circuit Judge.

Anita **Dembiczak** and Benson Zinbarg appeal the rejection, upheld by the Board of Patent Appeals and Interferences, of all pending claims in their Application No. 08/427,732. See Ex Parte **Dembiczak**, No. 96-2648, slip op. at 43 (May 14, 1998). Because the Board erred in sustaining rejections of the pending claims as obvious under 35 U.S.C. § 103(a) (Supp. 1998), and for obviousness-type double patenting, we reverse.

I

The invention at issue in this case is, generally speaking, a large trash bag made of orange plastic and decorated with lines and facial features, allowing the bag, when filled **[*2]** with trash or leaves, to resemble a Halloween-style pumpkin, or jack-o'-lantern. As the inventors, Anita **Dembiczak** and Benson Zinbarg (collectively, "**Dembiczak**") note, the invention solves the long-standing problem of unsightly trash bags placed on the curbs of America, and, by fortuitous happenstance, allows users to express their whimsical or festive nature while properly storing garbage, leaves, or other household debris awaiting collection. Embodiments of the invention--sold under a variety of names, including Giant Stuff-A-Pumpkin TM, Funkins, Jack Sak TM, and Bag-O-Fun TM--have undisputedly been well-received by consumers, who bought more than seven million units in 1990 alone. Indeed, in 1990, the popularity of the pumpkin bags engendered a rash of thefts around Houston, Texas, leading some owners to resort to preventative measures, such as greasing the bags with petroleum jelly and tying them to trees. See R. Piller, "Halloween Hopes Die on the Vine," Hous. Chron., Oct. 19, 1990, at 13A.

The road to profits has proved much easier than the path to patentability, however. In July 1989, **Dembiczak** filed a utility patent application generally directed to the pumpkin bags. **[*3]** In a February 1992 appeal, the Board of Patent Appeals and

Interferences ("the Board") reversed the Examiner's rejection, but entered new grounds for rejection. **Dembiczak** elected to continue prosecution, filing a continuation application to address the new grounds for rejection. Thereafter, the invention made a second appearance before the Board, in April 1993, when the Board both sustained the Examiner's rejection and again entered new grounds for rejection. Again, a continuation application was filed (the instant application). And again the Examiner's rejection was appealed to the Board, which sustained the rejection in a May 14, 1998, decision. See **Dembiczak**, slip op. at 43.

A

The patent application at issue includes claims directed to various embodiments of **[*997]** the pumpkin bag. Claims 37, 49, 51, 52, 58 through 64, 66 through 69, and 72 through 81 are at issue in this appeal. Though the claims vary, independent claim 74 is perhaps most representative:

74. A decorative bag for use by a user with trash filling material, the bag simulating the general outer appearance of an outer surface of a pumpkin having facial indicia thereon, comprising:

a flexible waterproof plastic **[*4]** trash or leaf bag having

an outer surface which is premanufactured orange in color for the user to simulate the general appearance of the outer skin of a pumpkin, and having

facial indicia including at least two of an eye, a nose and a mouth on the orange color outer surface for forming a face pattern on said orange color outer surface to simulate the general outer appearance of a decorative pumpkin with a face thereon,

said trash or leaf bag having first and second opposite ends, at least said second end having an opening extending substantially across the full width of said trash or leaf bag for receiving the trash filling material,

wherein when said trash or leaf bag is filled with trash filling material and closed, said trash or leaf bag takes the form and general appearance of a pumpkin with a face thereon.

All of the independent claims on appeal, namely 37, 52, 72, and 74, contain limitations that the bag must be "premanufactured orange in color," have "facial indicia," have openings suitable for filling with trash material, and that when filled, the bag must have a generally rounded appearance, like a pumpkin. Independent claims 37, 52, and 72 add the **[*5]** limitation that the bag's height must at least 36 inches. Claim 72 requires that the bag be made of a "weatherproof material," and claim 74, as shown above, requires that the bag be "waterproof." Claim 52 recites a "method of assembling" a bag with the general characteristics of apparatus claim 37.

B

The prior art cited by the Board includes:

- (1) pages 24-25 of a book entitled "A Handbook for Teachers of Elementary Art," by Holiday Art Activities ("Holiday"), describing how to teach children to make a "Crepe Paper Jack-O-Lantern" out of a strip of orange crepe paper, construction paper cut-outs in the shape of facial features, and "wadded newspapers" as filling;
- (2) page 73 of a book entitled "The Everything Book for Teachers of Young Children," by Martha Shapiro and Valerie Indenbaum ("Shapiro"), describing a method of making a "paper bag pumpkin" by stuffing a bag with newspapers, painting it orange, and then painting on facial features with black paint;
- (3) U.S. Patent No. 3,349,991 to Leonard Kessler, entitled "Flexible Container" ("Kessler"), describing a bag apparatus wherein the bag closure is accomplished by the use of folds or gussets in the bag material;
- (4) **[*6]** U.S. Patent No. Des. 310,023, issued August 21, 1990 to **Dembiczak ('023')**, a design patent depicting a bag with a jack-o'-lantern face;
- (5) U.S. Patent No. Des. 317,254, issued June 4, 1991 to **Dembiczak ('254')**, a design patent depicting a bag with a jack-o'-lantern face; and,
- (6) Prior art "conventional" plastic lawn or trash bags ("the conventional trash bags").

Using this art, the Board affirmed the Examiner's final rejection of all the independent claims (37, 52, 72, 74) under 35 U.S.C. § 103. **[*998]** holding that they would have been obvious in light of the conventional trash bags in view of the Holiday and Shapiro references. The Board determined that, in its view of the prior art, "the only difference between the invention presently defined in the independent claims on appeal and the orange plastic trash bags of the prior art and the use of such bags resides in the application of the facial indicia to the outer surface of the bag." **Dembiczak**, slip op. at 18. The Board further held that missing facial indicia elements were provided by the Holiday and Shapiro references' description of painting jack-o'-lantern faces on paper bags. See **[*7]** id. at 18-19. Dependent claims 49 and 79, which include a "gussets" limitation, were considered obvious under similar reasoning, except that the references cited against them included Kessler. See id. at 7.

The Board also affirmed the Examiner's obviousness-type double patenting rejection of all the independent claims in light of the two **Dembiczak** design patents ('023 and '254) and Holiday. See id. at 12. The Board held that the design patents depict a generally rounded bag with jack-o'-lantern facial indicia, and that the Holiday reference supplies the missing limitations, such as the "thin, flexible material" of manufacture, the orange color, the initially-open upper end, and the trash filling material. The Board also stated that the various limitations of the dependent claims--e.g., color, the inclusion of leaves as stuffing, and the dimensions--would all be obvious variations of the depictions in the **Dembiczak** design patents. See id. at 8-9. In addition, a two-way test for obviousness-type double patenting, the Board held that the claims of the **Dembiczak** design patents "do not exclude" the additional structural limitations of the pending utility claims, **[*8]** and thus the design patents were merely obvious variations of the subject matter disclosed in the utility claims. See id. at 11. The Board further upheld, on similar

grounds and with the inclusion of the Kessler reference, the obviousness-type double patenting rejection of dependent claim 49. See *id.* at 12.

This appeal followed, vesting this court with jurisdiction pursuant to 28 U.S.C. § 1295(a)(4)(A) (1994).

II

HN1 A claimed invention is unpatentable if the differences between it and the prior art "are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art." 35 U.S.C. § 103 (a) (Supp. 1998); see Graham v. John Deere Co., 383 U.S. 1, 14, 148 U.S.P.Q. (BNA) 459, 465, 15 L. Ed. 2d 545, 86 S. Ct. 684 (1966). **HN2** The ultimate determination of whether an invention is or is not obvious is a legal conclusion based on underlying factual inquiries including: (1) the scope and content of the prior art; (2) the level of ordinary skill in the prior art; (3) the differences between the claimed invention and the prior art; and (4) objective evidence of nonobviousness. See Graham, 383 U.S. at 17-18, 148 U.S.P.Q. (BNA) [*9] at 467; Miles Labs, Inc. v. Shandon Inc., 997 F.2d 870, 877, 27 U.S.P.Q.2D (BNA) 1123, 1128 (Fed. Cir. 1993). **HN3** We therefore review the ultimate determination of obviousness without deference to the Board, while examining any factual findings for clear error. See, e.g., In re Zurko, 142 F.3d 1447, 1459, 46 U.S.P.Q.2D (BNA) 1691, 1700 (Fed. Cir.) (en banc), cert. granted, 119 S. Ct. 401 (1998).

A

Our analysis begins in the text of section 103 quoted above, with the phrase "at the time the invention was made." For it is this phrase that guards against entry into the "tempting but forbidden zone of hindsight," see Loctite Corp. v. Ultraseal Ltd., 781 F.2d 861, 873, 228 U.S.P.Q. (BNA) 90, 98 (Fed. Cir. 1985), overruled on other grounds by Nobelpharma AB v. Implant Innovations, Inc., 141 F.3d 1059, 46 U.S.P.Q.2D (BNA) 1097 **[*999]** (Fed. Cir. 1998), when analyzing the patentability of claims pursuant to that section. **HN4** Measuring a claimed invention against the standard established by section 103 requires the oft-difficult but critical step of casting the mind back to the time of invention, to consider the thinking of one of ordinary skill in the art, guided only by the prior art references and the then-accepted **[*10]** wisdom in the field. See, e.g., W.L. Gore & Assoc., Inc. v. Garlock, Inc., 721 F.2d 1540, 1553, 220 U.S.P.Q. (BNA) 303, 313 (Fed. Cir. 1983). Close adherence to this methodology is especially important in the case of less technologically complex inventions, where the very ease with which the invention can be understood may prompt one "to fall victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against its teacher." *Id.*

Our case law makes clear that **HN5** the best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references. See, e.g., C.R. Bard, Inc. v. M3 Sys., Inc., 157 F.3d 1340, 1352, 48 U.S.P.Q.2D (BNA) 1225, 1232 (Fed. Cir. 1998) (describing "teaching or suggestion or motivation [to combine]" as an "essential evidentiary component of an obviousness holding"); In re Rouffet, 149 F.3d 1350, 1359, 47 U.S.P.Q.2D (BNA) 1453, 1459 (Fed. Cir. 1998) ("the Board must identify specifically . . . the reasons one of ordinary skill in the art would have been motivated to select **[*11]** the references and combine them"); In re Fritch, 972 F.2d 1260, 1265, 23 U.S.P.Q.2D (BNA) 1780, 1783 (Fed. Cir. 1992) (examiner can satisfy burden of obviousness in light of combination "only by showing some objective teaching [leading to the combination]"); In re Fine, 837 F.2d 1071, 1075,

5 U.S.P.Q.2D (BNA) 1596, 1600 (Fed. Cir. 1988) (evidence of teaching or suggestion "essential" to avoid hindsight); Ashland Oil, Inc. v. Delta Resins & Refractories, Inc., 776 F.2d 281, 297, 227 U.S.P.Q. (BNA) 657, 667 (Fed. Cir. 1985) (district court's conclusion of obviousness was error when it "did not elucidate any factual teachings, suggestions or incentives from this prior art that showed the propriety of combination"). See also Graham, 383 U.S. at 18, 148 U.S.P.Q. (BNA) at 467 ("strict observance" of factual predicates to obviousness conclusion required). ^{HN6}Combining prior art references without evidence of such a suggestion, teaching, or motivation simply takes the inventor's disclosure as a blueprint for piecing together the prior art to defeat patentability--the essence of hindsight. See, e.g., Interconnect Planning Corp. v. Feil, 774 F.2d 1132, 1138, 227 U.S.P.Q. (BNA) 543, 547 (Fed. Cir. 1985) ("The invention **[**12]** must be viewed not with the blueprint drawn by the inventor, but in the state of the art that existed at the time."). In this case, the Board fell into the hindsight trap.

We have noted that ^{HN7}evidence of a suggestion, teaching, or motivation to combine may flow from the prior art references themselves, the knowledge of one of ordinary skill in the art, or, in some cases, from the nature of the problem to be solved, see Pro-Mold & Tool Co. v. Great Lakes Plastics, Inc., 75 F.3d 1568, 1573, 37 U.S.P.Q.2D (BNA) 1626, 1630 (Fed. Cir. 1996). Par Ordnance Mfg. v. SGS Imports Intern., Inc., 73 F.3d 1085, 1088, 37 U.S.P.Q.2D (BNA) 1237, 1240 (Fed. Cir. 1995), although "the suggestion more often comes from the teachings of the pertinent references," Rouffet, 149 F.3d at 1355, 47 U.S.P.Q.2D (BNA) at 1456. ^{HN8}The range of sources available, however, does not diminish the requirement for actual evidence. That is, the showing must be clear and particular. See, e.g., C.R. Bard, 157 F.3d 1340 at 1352, 48 U.S.P.Q.2D (BNA) at 1232. ^{HN9}Broad conclusory statements regarding the teaching of multiple references, standing alone, are not "evidence." E.g., McElmurry v. Arkansas Power & Light Co., 995 F.2d 1576, 1578, 27 U.S.P.Q.2D (BNA) **[**13]** 1129, 1131 (Fed. Cir. 1993) ("Mere denials and conclusory statements, however, are not sufficient to establish a genuine issue of **[*1000]** material fact."); In re Sichert, 566 F.2d 1154, 1164, 196 U.S.P.Q. (BNA) 209, 217 (CCPA 1977) ("The examiner's conclusory statement that the specification does not teach the best mode of using the invention is unaccompanied by evidence or reasoning and is entirely inadequate to support the rejection."). In addition to demonstrating the propriety of an obviousness analysis, particular factual findings regarding the suggestion, teaching, or motivation to combine serve a number of important purposes, including: (1) clear explication of the position adopted by the Examiner and the Board; (2) identification of the factual disputes, if any, between the applicant and the Board; and (3) facilitation of review on appeal. Here, however, the Board did not make particular findings regarding the locus of the suggestion, teaching, or motivation to combine the prior art references.

All the obviousness rejections affirmed by the Board resulted from a combination of prior art references, e.g., the conventional trash or yard bags, and the Holiday and Shapiro publications teaching **[**14]** the construction of decorated paper bags. See **Dembiczak**, slip op. at 6-7. To justify this combination, the Board simply stated that "the Holiday and Shapiro references would have suggested the application of . . . facial indicia to the prior art plastic trash bags." Id. at 18-19. However, rather than pointing to specific information in Holiday or Shapiro that suggest the combination with the conventional bags, the Board instead described in detail the similarities between the Holiday and Shapiro references and the claimed invention, noting that one reference or the other--in combination with each other and the conventional trash bags--described all of the limitations of the pending claims. See id. at 18-28. Nowhere does the Board particularly identify any suggestion, teaching, or motivation to combine the children's art references (Holiday and Shapiro) with the conventional trash or lawn bag references, nor does the Board make specific--or even inferential--findings concerning the identification of the relevant art, the level of ordinary skill in the art, the nature of the problem to be solved, or any other factual findings that might serve to support a proper obviousness **[**15]** analysis. See, e.g., Pro-Mold & Tool, 75 F.3d at 1573, 37 U.S.P.Q.2D (BNA) at 1630.

To the contrary, the obviousness analysis in the Board's decision is limited to a discussion of the ways that the multiple prior art references can be combined to read on the claimed invention. For example, the Board finds that the Holiday bag reference depicts a "premanufactured orange" bag material, see **Dembiczak**, slip op. at 21, finds that Shapiro teaches the use of paper bags in various sizes, including "large", see id. at 22-23, and concludes that the substitution of orange plastic for the crepe paper of Holiday and the paper bags of Shapiro would be an obvious design choice, see id. at 24. Yet this reference-by-reference, limitation-by-limitation analysis fails to demonstrate how the Holiday and Shapiro references teach or suggest their combination with the conventional trash or lawn bags to yield the claimed invention. See Rouffet, 149 F.3d at 1357, 47 U.S.P.Q.2D (BNA) at 1459 (noting Board's failure to explain, when analyzing the prior art, "what specific understanding or technical principle . . . would have suggested the combination"). Because we do not discern any finding by **[*16]** the Board that there was a suggestion, teaching, or motivation to combine the prior art references cited against the pending claims, the Board's conclusion of obviousness, as a matter of law, cannot stand. See C.R. Bard, 157 F.3d at 1352, 48 U.S.P.Q.2D (BNA) at 1232; Rouffet, 149 F.3d at 1359, 47 U.S.P.Q.2D (BNA) at 1459; Fritch, 972 F.2d at 1265, 23 U.S.P.Q.2D (BNA) at 1783; Fine, 837 F.2d at 1075, 5 U.S.P.Q.2D (BNA) at 1600; Ashland Oil, 776 F.2d at 297, 227 U.S.P.Q. (BNA) at 667.

B

The Commissioner of Patents and Trademarks ("Commissioner") attempts to justify the Board's decision on grounds **[*1001]** different from that relied upon by the Board, arguing that one of ordinary skill in the art would have been motivated to combine the references. Of course, in order to do so, the Commissioner must do what the Board did not do below: make specific findings of fact regarding the level of skill in the art ("a designer and manufacturer of trash and leaf bags, particularly one specializing in the ornamental and graphic design of such bags"), Resp't Br. at 14, the relationship between the fields of conventional trash bags and children's crafts, respectively ("the artisan would also have been well aware of the ancillary, **[*17]** corollary, and atypical uses of 'trash' bags such as their application in hobby and art projects"), Resp't Br. at 15, and the particular features of the prior art references that would motivate one of ordinary skill in a particular art to select elements disclosed in references from a wholly different field ("a designer and manufacturer of trash and leaf bags would have recognized the paper bag in Shapiro to be a trash bag and therefore would have been motivated to combine it with the admitted prior art plastic trash and leaf bags to arrive at the claimed invention"), Resp't Br. at 15. The Commissioner also appears to cite additional references in support of his obviousness analysis, noting that at least two design patents (in the record but not cited against the presently pending claims) teach the placement of "graphical information, including text, designs, and even facial indicia, to colored bags." Resp't Br. at 16. This new analysis, apparently cut from whole cloth in view of appeal, does little more than highlight the shortcomings of the decision below, and we decline to consider it. See, e.g., In re Robertson, 1999 U.S. App. LEXIS 3224, 169 F.3d 743, 746, **[*18]** 49 U.S.P.Q.2D (BNA) 1949, 1951 (Fed. Cir. 1999) ("We decline to consider [the Commissioner's] newly-minted theory as an alternative ground for upholding the agency's decision."); In re Soni, 54 F.3d 746, 751, 34 U.S.P.Q.2D (BNA) 1684, 1688 (Fed. Cir. 1995); In re Hounsfield, 699 F.2d 1320, 1324, 216 U.S.P.Q. (BNA) 1045, 1049 (Fed. Cir. 1983) (rejecting an "attempt[] by the Commissioner 'to apply a new rationale to support the rejection.'"); see also 35 U.S.C. § 144 (1994) (an appeal to the Federal Circuit "is taken on the record before The Patent and Trademark Office"). ^{HN10} ¶ Because the Board has not established a prima facie case of obviousness, see In re Bell, 991 F.2d 781, 783, 26 U.S.P.Q.2D (BNA) 1529, 1531 (Fed. Cir. 1993) ("The PTO bears the burden of establishing a case of prima facie obviousness."), we therefore reverse the obviousness rejections, and have no need to address the parties' arguments with respect to secondary factors.

III

Dembiczak also asks this court to reverse the Board's rejection of the pending claims for **HN11** obviousness-type double patenting, which is a judicially-created doctrine that seeks to prevent the applicant from expanding the grant of the patent right beyond the **[*19]** limits prescribed in Title 35. See, e.g., In re Braat, 937 F.2d 589, 592, 19 U.S.P.Q.2D (BNA) 1289, 1291-92 (Fed. Cir. 1991); In re Longi, 759 F.2d 887, 892, 225 U.S.P.Q. (BNA) 645, 648 (Fed. Cir. 1985). See also 35 U.S.C. § 154(a)(2) (Supp. 1998) (discussing patent term). The doctrine prohibits claims in a second patent which define "merely an obvious variation" of an invention claimed by the same inventor in an earlier patent. Braat, 937 F.2d at 592, 19 U.S.P.Q.2D (BNA) at 1292 (quoting In re Vogel, 57 C.C.P.A. 920, 422 F.2d 438, 441, 164 U.S.P.Q. (BNA) 619, 622 (CCPA 1970)). Thus, unless a claim sought in the later patent is patentably distinct from the claims in an earlier patent, the claim must be rejected. See In re Goodman, 11 F.3d 1046, 1052, 29 U.S.P.Q.2D (BNA) 2010, 2015 (Fed. Cir. 1993); Vogel, 422 F.2d at 441, 164 U.S.P.Q. (BNA) at 622. **HN12** This question is one of law, which we review de novo. See Goodman, 11 F.3d at 1052, 29 U.S.P.Q.2D (BNA) at 2015; Texas Instruments Inc. v. United States Int'l Trade Comm'n, 988 F.2d 1165, 1179, 26 U.S.P.Q.2D (BNA) 1018, 1029 (Fed. Cir. 1993).

[*1002] A

HN13 The law provides that, in some very rare cases, obvious-type double patenting may be found between design and utility patents. **[*20]** See Carman Indus., Inc. v. Wahl, 724 F.2d 932, 939-40, 220 U.S.P.Q. (BNA) 481, 487 (Fed. Cir. 1983) (noting that, while theoretically possible, "double patenting is rare in the context of utility versus design patents"); In re Thorington, 57 C.C.P.A. 759, 418 F.2d 528, 536-37, 163 U.S.P.Q. (BNA) 644, 650 (CCPA 1969) (Double patenting between a design and utility patent is possible "if the features producing the novel aesthetic effect of a design patent or application are the same as those recited in the claims of a utility patent or application as producing a novel structure."); In re Phelan, 40 C.C.P.A. 1023, 205 F.2d 183, 98 U.S.P.Q. (BNA) 156 (CCPA 1953); In re Barber, 23 C.C.P.A. 834, 81 F.2d 231, 28 U.S.P.Q. (BNA) 187 (CCPA 1936); In re Hargraves, 19 C.C.P.A. 784, 53 F.2d 900, 11 U.S.P.Q. (BNA) 240 (CCPA 1931). In these cases, a "two-way" test is applicable. See Carman, 724 F.2d at 940, 220 U.S.P.Q. (BNA) at 487. Under this test, the obviousness-type double patenting rejection is appropriate only if the claims of the two patents cross-read, meaning that "the test is whether the subject matter of the claims of the patent sought to be invalidated would have been obvious from the subject matter of the claims of the **[*21]** other patent, and vice versa." Id., 220 U.S.P.Q. (BNA) at 487. See also Braat, 937 F.2d at 593, 19 U.S.P.Q.2D (BNA) at 1292 (explaining two-way test).

B

In making its double patenting rejection, the Board concluded that all but one of the pending claims of **Dembiczak's** utility application would have been merely an obvious variation of the claims of the earlier-issued design patents--the **Dembiczak '023** and **'254** references--in light of the Holiday reference. The remaining claim, dependent claim 49, was judged obvious in light of the combination of the **Dembiczak** design patents, Holiday, and the Kessler reference.

Acknowledging that the two-way test was required by Carman, 724 F.2d at 940, 220 U.S.P.Q. (BNA) at 487, the Board concluded that "the design claimed in each of appellants' design patents does not exclude the features pertaining to the construction and color of the bag, the use of a plastic material for making the bag, the size or thickness of the bag . . . or the use of various types of filling material The particular details of the facial indicia would have been a matter of design choice

as evidenced by the Holiday handbook," and that therefore, in view of Holiday, the claims of the **[**22]** design patents were obvious variants of the pending utility patent claims. See **Dembiczak**, slip op. at 11. We disagree. ^{HN14} In order for a design to be unpatentable because of obviousness, there must first be a basic design reference in the prior art, the design characteristics of which are "basically the same as the claimed design." In re Borden, 90 F.3d 1570, 1574, 39 U.S.P.Q.2D (BNA) 1524, 1526 (Fed. Cir. 1996); In re Rosen, 673 F.2d 388, 391, 213 U.S.P.Q. (BNA) 347, 350 (CCPA 1982). The phrase "having facial indicia thereon" found in the claims of the pending utility application is not a design reference that is "basically the same as the claimed design." Borden, 90 F.3d at 1574, 39 U.S.P.Q.2D (BNA) at 1526. In fact, it describes precious little with respect to design characteristics. The Board's suggestion that the design details were simply "a matter of design choice" evinces a misapprehension of the subject matter of design patents. E.g., Carman, 724 F.2d at 939 n.13, 220 U.S.P.Q. (BNA) at 486 n.13 ("Utility patents afford protection for the mechanical structure and function of an invention whereas design patent protection concerns the ornamental or aesthetic features of a design.") Indeed, we note **[**23]** that the two design patents at issue here--the **Dembiczak '023** and **'254** patents--were considered nonobvious over each other, and were even the subject of a restriction requirement. See 35 U.S.C. § 121 (1994) ("If two or more independent and distinct inventions are claimed in one **[*1003]** application, the Commissioner may require the application to be restricted to one of the inventions."); 37 C.F.R. § 1.142. The position adopted by the Board--that a textual description of facial indicia found in the claims of the utility patent application makes obvious the specific designs claimed in the (patentably distinct) **Dembiczak** design patents--would presumably render obvious, or even anticipate, all design patents where a face was depicted on a bag. But this, of course, is not the law; the textual description cannot be said to be a reference "basically the same as the claimed design," of the design patents at issue here. Borden, 90 F.3d at 1574, 39 U.S.P.Q.2D (BNA) at 1526 (internal quotation marks omitted). The Board's conclusion of obviousness is incorrect.

Because we find that the Board erred in concluding that the design patents were obvious variants of the pending utility claims, we need not address **[**24]** the other prong of the two-way double patenting test--whether the pending utility claims are obvious variations of the subject matter claimed in the design patents. See Carman, 724 F.2d at 939, 220 U.S.P.Q. (BNA) at 487 (both prongs of the two-way test required for obviousness-type double patenting). The double patenting rejections are reversed.

IV

Because there is no evidence in the record of a suggestion, teaching, or motivation to combine the prior art references asserted against the pending claims, the obviousness rejections are reversed. In addition, because the Board misapprehended the test for obviousness-type double patenting, and because the pending utility claims do not render obvious the design patents, the double patenting rejections are also reversed.

REVERSED

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